Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 (Currently Amended): A method of manufacturing a magnetic recording medium, comprising sequential steps of:

(a) providing an apparatus for manufacturing said medium;

(b) supplying said apparatus with a substrate for said medium;

(c) forming a magnetic recording layer on said substrate in a first portion of said apparatus, wherein the magnetic recording layer is selected from the group consisting of:

(1) a Co-based alloy, Cr-rich grain boundary type magnetic layer comprising a CoCrPtX alloy, where X = at least one element selected from the group consisting of Ta, B, Mo, V, Nb, W, Zr, Re, Ru, Cu, Ag, Hf, Ir, and Y, and wherein Co-containing grains with *hcp* lattice structure are segregated by Cr-rich grain boundaries,

(2) a granular type magnetic layer comprising a CoPtX alloy, where X = at least one material selected from the group consisting of Cr, Ta, B, Mo, V, Nb, W, Zr, Re, Ru, Cu, Ag, Hf, Ir, Y, SiO_2, SiO, Si_3N_4, Al_2O_3, AlN, TiO, TiO_2, TiO_x, TiN, TiC, Ta_2O_3, NiO, and CoO, and wherein Co-containing grains with *hcp* lattice structure are segregated by oxide, nitride, or carbide grain boundaries,

(3) a superlattice-type layer comprising a multi-layer $(CoX/Pd)_n$ or $(CoX/Pt)_n$ structure, where *n* is an integer from about 10 to about 25 and X is an element selected from the group consisting of Cr, Ta, B, Mo, Pt, W, and Fe, and

(4) an $L1_0$ ferromagnetic metal alloy type layer comprising a FePt or CoPt alloy;

(d) treating said magnetic recording layer, as deposited on said substrate in step (c), with oxygen gas in a second portion of said apparatus at a sub-atmospheric pressure and for an interval sufficient to provide the resultant medium with at least one of the following, relative to a similar medium manufactured by a similar method but wherein the oxygen treatment of step (d) is not performed:

(i) a more negative nucleation field (H_n);

(ii) increased remanent squareness (S_r);

(iii) increased signal-to-medium noise ratio (SMNR);

(iv) narrower switching field distribution (SFD); and

(v) decreased thermal decay rate; and

(e) forming a protective overcoat layer on said oxygen-treated magnetic recording layer in a third portion of said apparatus.

2 (Original): The method according to claim 1, wherein:

step (a) comprises providing an apparatus including at least said first, second, and third spaced-apart portions.

3 (Original): The method according to claim 2, wherein:

step (a) comprises providing an apparatus adapted for continuous manufacture of a plurality of media and including means for transporting said substrate serially through said first, second, and third spaced-apart portions.

4 (Original): The method according to claim 3, wherein said first, second, and third spaced-apart, serially arranged portions of said apparatus respectively comprise first, second, and third spaced-apart chambers and at least said second chamber is adapted for providing a sub-atmospheric pressure therein.

5 (Original): The method according to claim 4, wherein said second chamber comprises means for flowing a mixture of oxygen gas diluted with an inert carrier gas past a surface of said magnetic recording layer formed on said substrate in step (c).

6 (Original): The method according to claim 4, wherein said first and third chambers of said apparatus are adapted for performing a thin film deposition process therein.

7 (Original): The method according to claim 6, wherein at least said first chamber of said apparatus is adapted for performing a sputtering process therein.

8-9 (Canceled)

10 (Currently Amended): The method according to claim [[9]] 1, wherein:

step (d) comprises treating said magnetic recording layer with a gas mixture comprising up to about 20 % oxygen gas in at least one inert diluent gas, at a total gas pressure up to about 50 mTorr, and for an interval up to about 10 sec.

11 (Original): The method according to claim 10, wherein:

step (c) further comprises utilizing a heated substrate during formation of said magnetic recording layer to effect segregation of Cr in said grain boundaries.

12 (Withdrawn): A perpendicular magnetic recording medium manufactured by the method according to claim 11.

13-14 (Canceled)

15 (Currently Amended): The method according to claim [[14]] 1, wherein:

step (d) comprises treating said magnetic recording layer with oxygen gas without applying heat thereto.

16 (Withdrawn): A perpendicular magnetic recording medium manufactured by the method according to claim 15.

17-20 (Canceled)

21 (Original): The method according to claim 1, wherein:

step (b) comprises supplying said apparatus with a disk-shaped substrate for a hard disk magnetic recording medium.

22 (Withdrawn): A disk drive comprising a magnetic recording medium formed by the process according to claim 21.

23 (Original): The method according to claim 1, wherein:

step (e) comprises forming a carbon-based protective overcoat layer on said oxygen-treated magnetic recording layer.

24 (Original): A method of manufacturing magnetic recording media according to a continuous process, comprising sequential steps of:

(a) providing at least one substrate for said magnetic recording media;

(b) providing an apparatus adapted for continuous manufacturing of said magnetic recording media, comprising at least first, second, and third spaced-apart, serially arranged processing chambers and including means for transporting said at least one substrate serially through at least said first, second, and third spaced-apart processing chambers;

(c) transporting said substrate through said first processing chamber while forming a magnetic recording layer thereon;

(d) transporting said substrate with said magnetic recording layer formed thereon to said second processing chamber;

(e) transporting said substrate through said second processing chamber while treating said magnetic recording layer with oxygen gas at a sub-atmospheric pressure and for an interval sufficient to provide the resultant media with at least one of the following, relative to similar

media manufactured by a similar method but wherein the oxygen treatment of step (e) is not performed:

(i) a more negative nucleation field (H_n);

(ii) increased remanent squareness (S_r);

(iii) increased signal-to-medium noise ratio (SMNR);

(iv) narrower switching field distribution (SFD); and

(v) decreased thermal decay rate;

(f) transporting said substrate with said oxygen-treated magnetic recording layer formed thereon to said third processing chamber; and

(g) transporting said substrate through said third processing chamber while forming a protective overcoat layer on said oxygen-treated magnetic recording layer; wherein:

said substrate is transported between and through each of said first, second, and third processing chambers at a substantially constant rate.

25 (Original): The method according to claim 24, wherein:

step (a) comprises providing at least one disk-shaped substrate for hard disk magnetic recording media;

step (b) comprises providing an apparatus wherein said first and third chambers are adapted for performing a thin film deposition process therein and at least said second chamber is adapted for providing a sub-atmospheric pressure therein; and

step (c) comprises forming a magnetic recording layer selected from the group consisting of: (1) a Co-based alloy, Cr-rich grain boundary type magnetic layer; (2) a granular type magnetic layer; (3) a superlattice-type layer; and (4) an $L1_0$ ferromagnetic metal alloy type layer.

26 (Currently Amended): A method of manufacturing a magnetic recording medium, comprising sequential steps of:

(a) providing an apparatus for manufacturing said medium;

(b) supplying said apparatus with a substrate for said medium;

(c) forming a magnetic recording layer on said substrate in a first portion of said apparatus;

(d) treating said magnetic recording layer, as deposited on said substrate in step (c), with oxygen gas in a second portion of said apparatus at a sub-atmospheric pressure; and

(e) forming a protective overcoat layer on said oxygen-treated magnetic recording layer in a third portion of said apparatus, wherein:

said substrate is transported between and through each of said first, second, and third portions at a substantially constant rate.